

IN THE CLAIMS:

Claims 1 and 2 have been amended herein. All of the pending claims 1 through 22 are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

1. (Currently amended) A system for determining a repairable semiconductor device of a plurality of semiconductor devices comprising:
testing apparatus for performing a test of a first type on at least one semiconductor device for identifying types of failures in the at least one semiconductor device, the testing apparatus including a support for supporting the at least one semiconductor device under test of ~~said~~ the plurality of semiconductor devices;
processing circuitry for communicating with the testing apparatus for determining at least one type of failure of a number of the identified types of failures, the processing circuitry providing at least one signal indicative of the at least one type of failure; and
decision circuitry for receiving the at least one signal indicative of the at least one type of failure of the types of failures for considering the at least one type of failure of the identified types of failures including at least one of designating the at least one semiconductor device for an additional procedure, designating the at least one semiconductor device for repair, and designating the at least one semiconductor device for additional tests of the first type, the decision circuitry for designating the at least one semiconductor device for the additional procedure when the at least one type of failure of the identified types of failures is within a first number set, designating the at least one semiconductor device for repair if the number of the identified types of failures is within a second number set, and determining when the at least one semiconductor device is repairable.

2. (Currently amended) The system of claim 1, wherein the decision circuitry designates the at least one semiconductor device ~~for the~~ for additional tests of the first type if the identified types of failures is within a third number set.

3. (Original) The system of claim 2, wherein the first number set includes only zero, the second number set includes numbers greater than zero and less than a threshold, and the third number set includes numbers equal to or greater than the threshold.

4. (Original) The system of claim 2, wherein the at least one semiconductor device is rejected when the identified types of failures is within the second number set and the at least one semiconductor device is not repairable.

5. (Original) The system of claim 1, wherein the processing circuitry is located one of proximate to the testing apparatus and remote from the testing apparatus.

6. (Original) The system of claim 1, further comprising:
a pass bin into which the at least one semiconductor device is relocated if the at least one semiconductor device is designated for the additional procedure; and
a repair bin into which the at least one semiconductor device is relocated if the at least one semiconductor device is designated for repair.

7. (Original) The system of claim 6, further comprising:
a reject bin into which the at least one semiconductor device is relocated is determined to be nonrepairable.

8. (Original) The system of claim 1, further comprising:
a system controller including the decision circuitry; and
a repair station controlled by the decision circuitry of the system controller.

9. (Original) The system of claim 1, further comprising:
a repair station, and wherein subsequent to the decision circuitry designating the at least one semiconductor device for repair, the decision circuitry determines whether the at least one semiconductor device is repairable and, if the at least one semiconductor device is repairable, the repair station repairs the at least one semiconductor device.
10. (Original) The system of claim 1, wherein the testing apparatus includes repair circuitry for performing a repair on the at least one semiconductor device when the at least one semiconductor device is designated for repair and is determined to be repairable.
11. (Original) The system of claim 1, wherein the at least one semiconductor device is binned based upon the number of the identified types of failures.
12. (Previously presented) The system of claim 1, wherein the identified types of failures include failures of different classes in which the number of identified types of failures is a number of total failures of all classes, and the decision circuitry considers failures of different classes in determining whether to designate the at least one semiconductor device for the additional procedure, designate the at least one semiconductor device for repair, or designate the at least one semiconductor device for the additional tests of the first type.
13. (Original) The system of claim 1, wherein the tests of the first type detect certain defects in the at least one semiconductor device which are not classified as examples of the identified types of failures and, therefore, do not contribute to the number of the identified types of failures.
14. (Original) The system of claim 1, wherein the additional procedure includes transporting the at least one semiconductor device to a predetermined location.

15. (Original) The system of claim 1, further comprising at least one of:
a first temperature-regulated chamber in which tests of the first type are performed; and
a second temperature-regulated chamber in which the additional procedure is performed.
16. (Original) The system of claim 1, wherein the testing apparatus includes probes,
and electrical connection is made between the probes and the at least one semiconductor device.
17. (Original) The system of claim 2, wherein the at least one semiconductor device
includes leads and the support includes sockets for receiving the leads, an electrical connection
for connecting between the testing apparatus and the sockets.
18. (Original) The system of claim 1, wherein tests of the first type include:
subjecting the at least one semiconductor device to various temperatures in a first range of
temperatures while monitoring electrical signals on the at least one semiconductor device;
and
the additional procedure includes subjecting the at least one semiconductor device to various
temperatures in a second range of temperatures while monitoring the electrical signals on
the at least one semiconductor device.
19. (Original) The system of claim 1, wherein the at least one semiconductor device
comprises one of a chip in wafer form and a package and leads.

20. (Previously presented) The system of claim 2, wherein the additional tests of the first type are performed, failures in the at least one semiconductor device are re-identified and a number of re-identified types of failures are determined, with the decision circuitry subsequently: designating the at least one semiconductor device for the additional procedure when the number of the re-identified types of failures is within a fourth number set; designating the at least one semiconductor device for repair when the number of the re-identified types of failures is within a fifth number set; designating the at least one semiconductor device for the additional tests of the first type when the number of the re-identified types of failures is within a sixth number set; and repeating such designations by the decision circuitry until alternately the number of the re-identified types of failures is within the fourth number set, the at least one semiconductor device is repairable and the number of the re-identified types of failures is within the fifth number set, or the additional tests of the first type have been performed a predetermined number of times and the number of the re-identified types of failures is within the sixth number set.

21. (Previously presented) The system of claim 20, wherein the additional procedure designated by the decision circuitry includes: designating the at least one semiconductor device for tests of a second type to re-identify types of failures in the at least one semiconductor device and determine the number of re-identified types of failures; designating the at least one semiconductor device for a further procedure when the number of the re-identified types of failures is within a seventh number set; designating the at least one semiconductor device for repair when the number of the re-identified types of failures is within an eighth number set; and the testing apparatus performing additional tests of the second type on the at least one semiconductor device when the number of the re-identified types of failures is within a ninth number set.

22. (Previously presented) The system of claim 1, wherein the decision circuitry includes:
a testing controller to control tests of the first type; and
a data analyzer receiving data from the test of the first type and determining one of designating the at least one semiconductor device for the additional procedure, designating the at least one semiconductor device for repair, and designating the at least one semiconductor device for the additional tests of the first type.